

VERTICAL COPULATION CAN OCCUR IN *LYCOSA MALITIOSA* TULLGREN (ARANEAE, LYCOSIDAE)

During studies on the sexual behavior of *Lycosa malitiosa* Tullgren we observed several copulations occurring on the cage wall (Fig. 1). It has been assumed that lycosid copulation (position II, Gerhardt, U. 1924. Arch. Naturgesch., 90:85-192) always occurs in the horizontal plane. This view may result from the general use of glass or plastic cages, which prevent lycosid spiders from climbing.

Lycosa malitiosa is a large, terrestrial species. It is often collected among stones in sandy areas with short grass (Capocasale, R. M. y F. G. Costa, 1975. Vie et Milieu, 25(1):1-15). They have also been found *in copula* under stones (Costa, F. G. and F. Pérez-Miles, occas. obs.). Copulation is lengthy: 288 palpal insertions during 99 min, at 21°C in laboratory conditions (Costa, F. G. 1979. Rev. Brasil. Biol., 39(2):361-376).

Spiders were separately housed in cylindrical cages with metallic mesh walls (12 cm diameter x 12 cm height) that were closed above and below with plastic dishes. These cages are useful because they extend the locomotory freedom of lycosid spiders, and they also improve the control of environmental parameters by external equipment. Each male was stimulated with sexual pheromone (female silk threads) and then introduced to the female's cage. The male's courtship — foreleg jerking and palpal drumming, described elsewhere (Costa, F. G. 1975. Rev. Brasil. Biol., 35(3):359-368) — was generally seen while the spiders were on the cage wall.

Twenty-four copulations of virgin spiders occurred: 13 on the floor (horizontal copulations), 10 on the wall (vertical copulations), and one that began vertically (first 15 min) and, after descending to the floor, was completed horizontally, all without any difficulties. Within vertical copulations, 6 occurred with the female

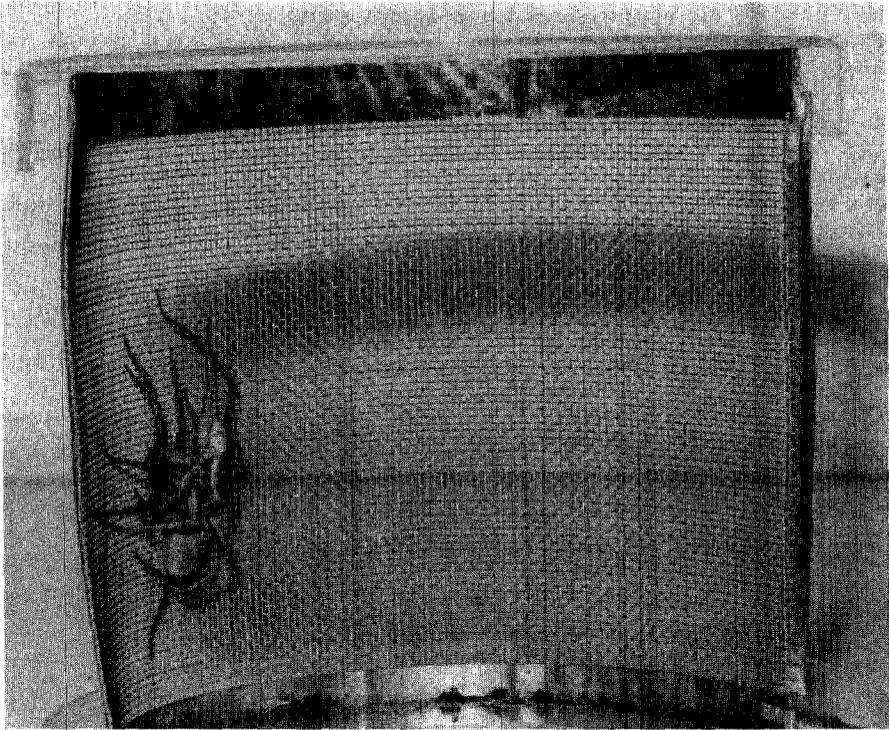


Fig. 1.—Side view of a vertical copulation of *Lycosa malitiosa* (male facing down and female facing up). To take this picture, the cylindrical cage wall was sectioned (Photography: R. M. Capocasale).

face down (and male face up), 3 with the female face up, and one with the longitudinal axis of the couple parallel to the floor. No qualitative or quantitative differences were found within vertical copulations, and none between vertical and horizontal copulations (mean durations: 76 min and 75 min, respectively, at 27°C).

The couple's orientation showed no influence of gravity on mating embrace or copulatory pattern in *L. malitiosa*. The couple's maintenance of a vertical orientation may be attributed mainly to the female's ability to hang on the wall, since only legs IV of the male grasped the cage wall (Fig. 1). These results do not agree with a view of a passive role ("cataleptic state") for lycosid females *in copula*.

We thank R. M. Capocasale and F. Pérez-Miles for the comments, and A. Postiglioni and J. S. Rovner for the English version of the manuscript. This work was supported by "Programa Regional de Desarrollo Científico y Tecnológico de O.E.A."

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Manuscript received October 1984, revised May 1985.

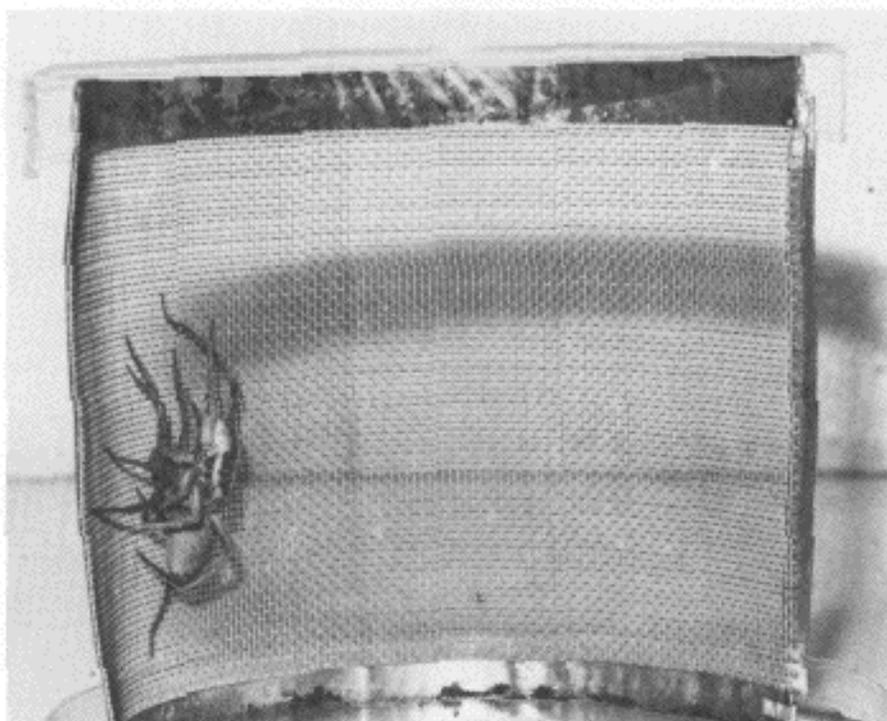


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